A LEAF-MINING HIPPELATES IN SOUTH FLORIDA
(Diptera, Chloropidae)\(^1\)

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The first confirmed rearing of a species of Hippelates mining healthy plant tissue was at Hialeah, Florida during October 1962. Subsequent rearings have provided further information. The larvae tunnel in the fleshy leaves of the Florida Crinum and Hymenocallis sp., spider lily, making linear to linear-blotch type mines; Hymenocallis may have as many as five mines in one leaf. The larvae pupate within the leaf mine channels under normal conditions in the field. After emergence of the adult flies, the mined leaves break down with a brownish colored rot. Hippelates infestations occur throughout the year in southern Florida.

The adults of the first rearing (1962) were identified by C. W. Sabrosky as Hippelates nobilis Lw. He asked, “Was this actually a leaf miner? Check whether it bred in the frass of some true miner.”

The author conducted more rearings from Crinum americanum L., and found no other insect associated with the Crinum leaves; the Hippelates infestation was found to be a primary infestation and only in healthy plant tissue. No parasites were associated with the leaf-mining Hippelates during the many rearings in southern Florida.

A letter from Mr. Sabrosky stated, “Your conclusions stimulated me to look up my records on H. nobilis, and I cannot find that nobilis has ever been reared, or I should say I cannot be sure. I have an old Connecticut record simply ‘Hemerocallis fulva,’ which might mean a rearing but might also be merely a flower visitation. A Brownsville, Texas, interception is labeled ‘Easter lilies in baggage,’ which suffers the same indefiniteness as the Connecticut record. Both are suggestive, though, in the kind of plants they are associated with.

“Next I turned to the closely related H. plebejus and H. proboscideus. No records of the former, but the latter has been reared at least twice in Florida from amaryllis bulbs. Our card catalog file quotes a letter from A. N. Tissot in 1930: ‘The larvae make tunnels through the bulbs’. However, he did express some doubt, ‘whether the larvae enter healthy bulbs or only after the bulbs have been attacked by some disease.’”

Two more letters from Mr. Sabrosky gave additional information. “When I mounted the Hippelates from fluid I found this specimen to be nearly intermediate between H. nobilis and H. proboscideus. It is closer to the latter. Under the circumstances I should be glad to have you rear a good series, if possible.” “The two Hippelates, both nice males, are the same intermediate type as previously, atypical proboscideus. Perhaps we are dealing with a different species.”

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\(^3\) Sabrosky has recently stated that some of the specimens from spider lily are distinctly H. proboscideus. He lists the ones from Crinum as Hippelates sp.
HOST COLLECTIONS AND REARINGS


_Eucharis_ sp. North Miami, Fla., 1964, F. W. Matthews and E. B. Lee, empty pupal cases of _Hippelates_ sp. in blotch type mine. Discarded.

_Gloriosa_ sp. South Miami, Fla., 1964, J. E. Porter, empty pupal cases found in blotch type mines. Discarded.


All of the reared _Hippelates_ specimens have been retained for the National Collection.

More research on the life history and biology of the plant feeding species is needed, especially with regard to plants cited in this paper. It is suggested that all dipterous leaf miners and bulb feeders be reared to adults and forwarded to Mr. Sabrosky for determination.

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Figure 1. Typical leaf mines of _Hippelates_ in _Hymenocallis_ sp. leaves. Photograph, courtesy of the Division of Plant Industry, Florida Department of Agriculture, Mildred Eaddy, Photographer.

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I am indebted to Mr. C. W. Sabrosky, Entomology Research Division, U. S. Department of Agriculture, for the determination of the reared _Hippelates_, for checking the card catalog file, and for the information
contained in his letters on the plant-associated *Hippelates*. I wish to thank Dr. J. E. Porter, Public Health Service, U. S. Quarantine Station, Scientist Director at Miami Beach, Florida, for his collections of the *Gloriosa* and *Hymenocallis* infestations; Mr. F. W. Matthews and Mr. E. B. Lee, both of the Plant Quarantine Division, U. S. Department of Agriculture, for their help in the collections of the *Eucharis* infestation; and Mr. C. W. Sabrocky and Dr. J. E. Porter for reviewing the manuscript.

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**BOOK REVIEW**


This fine study, the first volume from the Institute for the Study of Natural Species, is a taxonomic revision of the subgenus *Pseudophonus* of the genus *Harpalus* (Coleoptera: Carabidae) known to occur in North America. Chapter headings are as follows: 1) Introduction 2) Taxonomic treatment 3) Classification of the species 4) Key to the N.A. species 5) Problems in identification 6) Descriptions of the species and 7) Zoogeography. The approach is best illustrated by the following statements from the Preface: "Many generalizations have been made about the species problem; in comparison, relatively little has been said about problem species. It is our belief that a detailed study of a difficult group will provide the factual basis for possible future generalizations about speciation." The authors have very admirably presented such a basis for this difficult group.

The series of monographs "Studies on speciation" is primarily designed for the publication of research by those associated with the Institute for the Study of Natural Species, but it is open to any student of this phase of systematic biology. The Institute has as its threefold purpose: research, training and publication. Facilities are maintained for field research, classroom training, and publication in the present monograph series. These facilities are open to graduate students as well as the "established research biologists."—Robert E. Woodruff